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Shih-Hsiung Ni

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SQUIRE, SANDERS & DEMPSEY L.L.P.  
8000 TOWERS CRESCENT DRIVE  
14TH FLOOR  
VIENNA, VA 22182-6212

EXAMINER

DIVECHA, KAMAL B

ART UNIT

PAPER NUMBER

2151

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/982,794	<b>Applicant(s)</b> NI, SHIH-HSIUNG	
	<b>Examiner</b> KAMAL B. DIVECHA	<b>Art Unit</b> 2151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

This Action is in response to communications filed 4/10/08.

Claims 1-13 are pending in this application.

**Response to Arguments**

Applicant's arguments in the communication/response filed with respect to claims 1-13 have been fully considered but they are not persuasive.

In the response filed, applicant argues in substance that:

a. Applicant submits that there is no teaching or suggestion in Thompson, Scott and Parruck of receiving a data packet that includes a plurality of cells, where the header cell is one of the pluralities of cells, with the header cell including a header and packet information and including one header cell for the data packet, i.e. header in its entirety for the data packet (remarks, pg. 14, pg. 16-18).

In response to argument [a], Examiner respectfully disagrees for the reasons set forth in response to argument [b].

b. There is no teaching or suggestion in Scott of dividing the frame into a number of cells, with the header cell including header and data portions. As such, there is no teaching or suggestion in Scott of inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes and removing the null bytes from the modified header cell of the data packet as a

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modified cell of the data packet exists the network device. Thompson does not teach or suggest these features (remarks, pg. 15).

In response to argument [b], Examiner respectfully disagrees.

In support, **applicant specification, in part, discloses:**

[0002] The invention is related to a method and apparatus for high performance switching in a network such as token ring, ATM, fast Ethernet, Ethernet...In particular, the invention related to provide fixed sized cells bursts when the removal of a header having a variable length occurs.

[0005] A packet, in general...Thus, packet-switching scheme...In comparison, a cell, in the network terminology, is a fixed-length of data as opposed to a variable-length of data. Cells are basic unit of data transport used in protocols, such as ATM (Asynchronous Transfer Mode).

In other words, a data packet comprising a plurality of cells, wherein header cell of the data packet is one of the plurality of cells of the data packet and wherein the header cell of the plurality of cells comprises a header and packet data information is merely representing an ATM environment and/or cell-based switching environment, wherein the data is transported through the basic unit of data transport known as cells.

Initially, applicant acknowledged and/or admitted that Thompson discloses a network adaptor aligning the headers of the header portion of the packet by inserting pad bytes into the header, for example: remarks, pg. 12.

Independent claim 1, 6 and 10 stands rejected as follows:

As per claim 1, Thompson discloses a network device configured to prevent data misalignment of a data packet containing extra header bytes (col. 1 L25-38), the network device comprising:

an ingress module having an input interface to receive the data packet, wherein the data packet comprises a header and packet data information (col. 1 L25-30, col. 11 L26-32, applicant admitted prior art, AAPA, pg. 4 [0008]);

a header detector configured to detect a header of the data packet and remove the header from the data packet (col. 11 L51 to col. 12 L10, AAPA pg. 4 [0008]);

an insertion module configured to insert null bytes into the header of the data packet to form a modified data packet if the CPU determines that the header/data split is not on an even byte boundary (i.e. the number of bytes contained in data portion is even, multiple of predetermined bytes is an even number or odd, and the alignment must be corrected by processor 15 by inserting null bytes into the header of the cell (col. 12 L28-36, col. 1 L25-34; col. 5 L10-15, L29-37; fig 9; col. 4 L34-37: i.e. if the header/data split is not even, pad bytes or null bytes are inserted to correct the alignment)); and

an extraction module configured to remove the null bytes from the modified header of the data packet as a modified data packet exits the network device (col. 6 L35-46).

However, Thompson does not disclose a data packet comprising a plurality of cells including a header cell, wherein the header cell of the plurality of cells comprises a header and packet data portion (i.e. a typical ATM environment) and a counter to determine whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell.

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Scott, from the same field of endeavor discloses a network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 10 L15-21); an egress module having output interface to output the cells (col. 10 L27-30); a header detector configured to detect a header of the cell of the data packet and remove the header from the cell of the data packet (col. 10 L22-23, L54-55); a counter to determine and/or count the number of octets of the user data PDU of the payload; and an insertion module that adds pad characters to make the frame or cell equal an integer number of 48 octet cells (i.e. inserting null bytes if the frame or cell does not satisfy an integer number of 48 octet i.e. if it does not satisfy the multiple number of the predetermined number of bytes, an even number, col. 10 L40-50, fig. 5C item #236).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scott, in order to include a counter that determines whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed (i.e. a counter that counts number of bytes in the cell of the data packet), since Scott teaches and discloses a counter that counts data octets of the user data PDU of the payload and adding pad characters to make the frame equal an integer number of an even number of 48 octet cells.

One of ordinary skilled in the art would have been motivated because it would have determined and/or counted the number of bytes in a cell (Scott, col. 10 L40-50) and based on the determination it would have inserted the pad byte into the cell in order to align the headers and the cell (Thompson, col. 1 L25-38).

However, Thompson in view of Scott does not disclose a data packet comprising a plurality of cells including a header cell, wherein the header cell of the plurality of cells comprises a header and packet data information and wherein the header cell includes header in its entirety for the data packet (please note: Scott inherently discloses the limitation because Scott is related to ATM networks, however, in order to establish the proper prima facie case, Parruck has been introduced).

Parruck, from the same field of endeavor explicitly discloses a data packet comprising a plurality of cells including a header cell, wherein the header cell of the plurality of cells comprises header and packet data information, wherein the header cell includes the header in its entirety for the data packet (col. 1 L64 to col. 2 L9, col. 11 L5-19, col. 17 L6-64, col. 25 L58 to col. 26 L43: i.e. Parruck discloses preventing misalignment in ATM networks and MPLS network, fig. 41-42: Switch packet comprising switch header, i.e. header cell and plurality of data cells).

Therefore it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scot and further in view of Parruck, in order to prevent misalignment in an ATM networks.

One of ordinary skilled in the art would have been motivated because it would have prevented misalignment of the data packet and/or header cell in an ATM network (Parruck, col. 30 L49 to col. 31 L17).

### Thompson and The process of Preventing Data Misalignment

Initially, Thompson discloses a network device configured to prevent data misalignment of a data packet containing extra header bytes (See col. 1 L25-38), as acknowledged by the applicant, See remarks, pg. 11-12.

Moreover, Thompson teaches the process of receiving a data packet having header and data portion, i.e. **a typical Ethernet data packet**, removing the header off the data packet and performing alignment of network header by inserting the pad or null bytes in the header to cause the header in the network packet to be aligned along predetermined multi-byte boundaries, i.e. adding pad bytes when it is determined that the header cell, i.e. cell does not satisfy the predetermined multi-byte boundaries (thus, resulting in a modified header) (col. 1 L25-54, col. 3 L1 to col. 4 L50), **as explicitly acknowledged by the applicant, See remarks, pg. 11-12.**

As indicated in the rejection, Thompson practices the invention in a network environment such as network 30 (col. 1 L25-54, fig. 2).

However, Thompson does not disclose the system wherein the network 30 is an ATM network, which is explicitly known to utilize cell-based routing of data packets.

Parruck et al. and The ATM Network and/or protocol OR The Packet-switched network

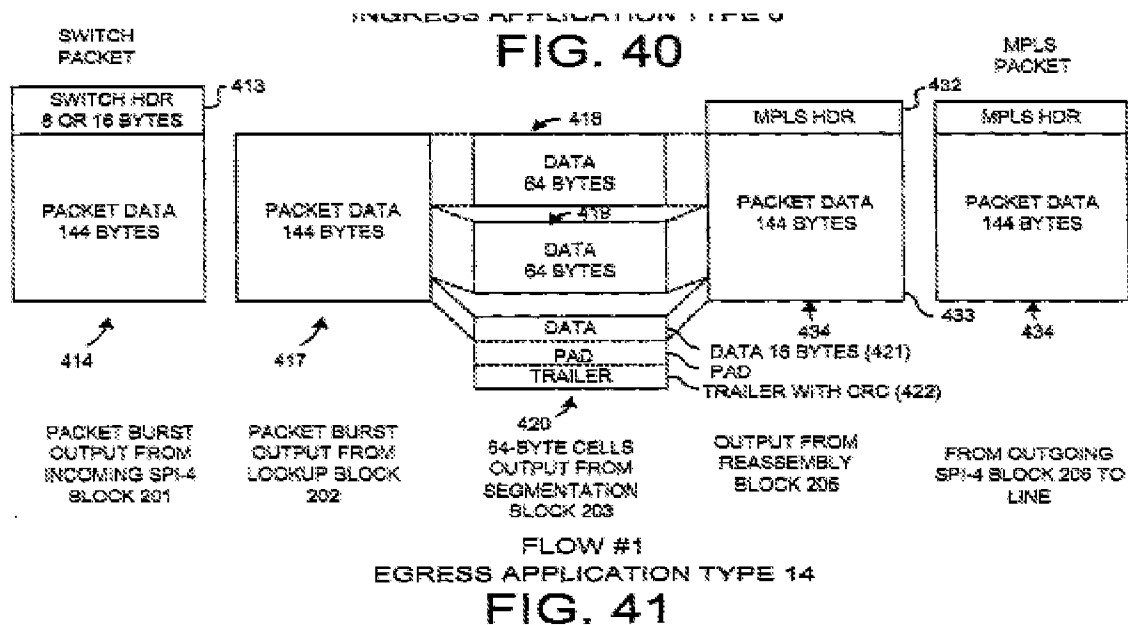
Parruck utilizes packet-switching and/or cell-based lower level protocol for transporting IP packets over a network, wherein the protocol is the Asynchronous Transfer Mode (ATM) (See col.1 L25-66), **as acknowledged by the applicant**, See remarks pg. 13, 2nd paragraph.

In ATM, all packets are of equal length. They are therefore called “cells”. **A large IP packet is transported over an ATM network by segmenting the large IP packet into a plurality of smaller pieces, i.e. dividing the packets into plurality of cells.** Each of smaller pieces is packaged to become an ATM cell. The ATM cells are then transported across the ATM network. When the ATM cells reach the edge of the ATM network, **their payloads are reassembled to reform the large IP packet** (Parruck, col. 1 L64 to col. 2 L10).

**An IP packet includes a single header for the entire data packet** comprising plurality of cells as shown in the reproduced figure below, i.e. header in its entirety for the data packet.

For example: item #414, 417, 420 and 434 [See Also applicant’s fig. 3A step #205 and 210 in comparison].

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At column 17 lines 5-64, Parruck discloses the process of receiving an ATM cell, wherein the ATM cell includes an ATM header 309 and a data payload 311.

In other words, Parruck discloses a network device, such as a router/switch (fig. 1, fig. 2 and fig. 4, col. 2 L37-57), wherein the data packet comprising plurality of cells are received, and wherein a header cell of the data packet is one of the plurality of cells of the data packet, i.e. header cell is equivalent to a cell of a data packet, and wherein the header cell of the plurality of cells comprises a header and packet data information, see col. 17 L6-64 and fig. 20, and wherein the header cell includes the header in its entirety for the data packet, for example: fig. 41 item #414 and 418.

In other words, a switch packet, i.e. a data packet, comprises plurality of cells including the header cell in its entirety, i.e. a single header for the data packet comprising 64 byte cells.

Moreover, “a data packet comprising plurality of cells...wherein...wherein...and wherein...” is utilized **in either ATM network and/or packet-switched network such as**

**Ethernet**, Fast Ethernet, etc., which are explicitly disclosed in the combination of Thompson and Parruck as set forth above [**See Also, Applicant's Field of Invention [0002]**].

Scott et al. and The Counter

Thompson teaches and discloses the process of receiving a data packet having header and data portion, removing the header off the data packet and performing alignment of network header by inserting the pad or null bytes in the header to cause the header in the network packet to be aligned along predetermined multi-byte boundaries, i.e. adding pad bytes when it is determined that the header cell, i.e. cell does not satisfy the predetermined multi-byte boundaries.

Stated another way, Thompson, initially, does suggest the usage of a counter that determines whether the header cell of the data packet contains and/or satisfies the predetermined multi-byte boundaries through the process of performing alignment of network header by inserting the pad or null bytes in the header to cause the header in the network packet to be aligned along predetermined multi-byte boundaries.

However, Thompson is not relied upon to teach and disclose a counter as in claims.

Scott discloses a network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 10 L15-21); an egress module having output interface to output the cells (col. 10 L27-30); a header detector configured to detect a header of the cell of the data packet and remove the header from the cell of the data packet (col. 10 L22-23, L54-55); a counter to determine and/or count the number of octets of the user data PDU of the payload; and an insertion module that adds pad characters to make the frame or cell equal an integer number



of 48 octet cells (i.e. inserting null bytes if the frame or cell does not satisfy an integer number of 48 octet i.e. if it does not satisfy the multiple number of the predetermined number of bytes, an even number, col. 10 L40-50, fig. 5C item #236).

In other words, Scott teaches and discloses a counter as in claims 1-13.

By applying the combination of Thompson and Scott to a system and network as in Parruck, i.e. applying Thompson and Scott to a network environment such as ATM network/protocol and/or to a packet-based switching environment, the combination would result in a process of inserting null bytes into the header cell including header in its entirety for the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes and removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exists the network device.

As such, the combination of Thompson, Scott and Parruck does teach, disclose and suggest the subject matter as in independent claims 1, 6 and 10.

c. Furthermore, applicant notes that the office action has pieced together four references to teach the claimed invention (remarks, pg. 18-19).

In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the *prima facie case of obviousness* clearly indicates the suggestion and/or motivation to combine the references (See the detailed rejection).

For the at least these reasons, the rejection is maintained.

It is noted that **applicant has failed to address the 35 USC 112, second paragraph rejection** as presented in the previous office action.

**Claim Interpretation**

For examination purposes, the network devices of claim 1 and claim 10 are interpreted as physical network device(s) in view of input interface and/or port.

**Claim Objections**

Claims 1, 6 and 10-13 are objected to because of the following informalities:

Claims 1, 6 and 10 recites “the other cells”. There is insufficient antecedent basis for this limitation in the claim. However, it appears the other cells correspond to plurality of cells of the data packet.

Claims 11-13 are objected because it recites “the method as in claim 10”. However, claim 10 is a network device. There is a typographical error.

Appropriate correction is required.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Independent claim 1 is reproduced herein:**

A network device configured to prevent data misalignment of a data packet containing extra header bytes, the network device comprising:

an ingress module having an input interface to receive a data packet comprising a plurality of cells wherein the a header cell of the data packet is one of the plurality of cells of the data packet, wherein the header cell of the plurality of cells comprises a header and packet data information and wherein the header cell includes the header in its entirety for the data packet;

a header detector configured to detect the header cell of the data packet and remove the header from the header cell of the data packet;

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a counter configured to determine whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell;  
an insertion module configured to insert null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes...; and  
an extraction module configured to remove the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network

Applicant's Background Information discloses:

[0004] A packet is a unit of data that is routed between a source and a destination network over the Internet or any other packet-switched network...when any file (i.e. email message, html file...) is sent from...via the Internet, the TCP/IP may divide the file into packets...

[0005] A packet, in general, loosely defines a block of variable-length data. Thus, packet switching scheme may be an efficient way to handle transmissions...In comparison, a cell, in the network terminology, is a fixed-length of data as opposed to variable-length of data. Cells are basic unit of data transport used in protocols, such as ATM...

In light of these teachings, it is unclear whether the “data packet comprising plurality of cells, wherein a header cell of the data packet is one of the plurality of cells of the data packet, wherein the header cell of the plurality of cells comprises a header and packet data information and wherein the header cell includes the header in its entirety for the data packet” is with respect to data packets in packet switching environment, Ethernet OR ATM environment, which comprises cell-based switching environment, thus enabling the scope of the claim unascertainable.

The teachings of packet-based receiving and cell-based receiving are distinct in the art, as evidenced by the applicant specification.

More specifically, it is unclear whether the receiving is with respect to full data packet and/or data packet which are divided into cells and received as cells.

Applicant is advised to take appropriate action.

Claims 2-13 are rejected for the same reasons as set forth in claim 1.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being obvious over Thompson, Michael I. (herein known as Thompson, EP 0 572 145 A2) in view of Scott (U. S. Patent No. 6,512,773 B1), and further in view of Parruck et al. (hereinafter Parruck, U. S. Patent No. 7,139,271 B1).

As per claim 1, Thompson discloses a network device configured to prevent data misalignment of a data packet containing extra header bytes (col. 1 L25-38), the network device comprising:

an ingress module having an input interface to receive the data packet, wherein the data packet comprises a header and packet data information (col. 1 L25-30, col. 11 L26-32, applicant admitted prior art, AAPA, pg. 4 [0008]);

a header detector configured to detect a header of the data packet and remove the header from the data packet (col. 11 L51 to col. 12 L10, AAPA pg. 4 [0008]: conventional data packet includes one header for the entire data packet);

an insertion module configured to insert null bytes into the header of the data packet to form a modified data packet if the CPU determines that the header/data split is not on an even byte boundary in order to align data packet (i.e. the number of bytes contained in data portion is

even, multiple of predetermined bytes is an even number or odd, and the alignment must be corrected by processor 15 by inserting null bytes into the header of the cell (col. 12 L28-36, col. 1 L25-34; col. 5 L10-15, L29-37; fig 9; col. 4 L34-37: i.e. if the header/data split is not even, pad bytes or null bytes are inserted to correct the alignment)); and

an extraction module configured to remove the null bytes from the modified header of the data packet as a modified data packet exits the network device (col. 6 L35-46).

However, Thompson does not disclose a data packet comprising a plurality of cells, wherein a header cell of the data packet is one of the plurality of cells of the data packet and wherein the header cell of the plurality of cells comprises a header and packet data portion (i.e. a typical ATM environment, wherein the data packet is segmented into plurality of smaller pieces known as ATM cells) and a counter to determine whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell.

Scott discloses a network device comprising: an ingress module having an input interface to receive a cell of the data packet (col. 10 L15-21); an egress module having output interface to output the cells (col. 10 L27-30); a header detector configured to detect a header of the cell of the data packet and remove the header from the cell of the data packet (col. 10 L22-23, L54-55); a counter to determine and/or count the number of octets of the user data PDU of the payload; and an insertion module that adds pad characters to make the frame or cell equal an integer number of 48 octet cells in order to align cells of the data packet (i.e. inserting null bytes if the frame or cell does not satisfy an integer number of 48 octet i.e. if it does not satisfy the multiple number of the predetermined number of bytes, an even number, col. 10 L40-50, fig. 5C item #236).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scott, in order to include a counter that determines whether the cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed (i.e. a counter that counts number of bytes in the cell of the data packet), since Scott teaches and discloses a counter that counts data octets of the user data PDU of the payload and adding pad characters to make the frame equal an integer number of an even number of 48 octet cells.

One of ordinary skilled in the art would have been motivated because it would have determined and/or counted the number of bytes in a cell (Scott, col. 10 L40-50) and based on the determination it would have inserted the pad byte into the cell in order to align the headers and the cell (Thompson, col. 1 L25-38).

However, Thompson in view of Scott does not disclose a data packet comprising a plurality of cells including a header cell, wherein the header cell of the plurality of cells comprises a header and packet data information and wherein the header cell includes the header in its entirety for the data packet (please note: Scott inherently discloses the limitation because Scott is related to ATM networks, however, in order to establish a proper prima facie case, Parruck has been introduced).

Parruck explicitly discloses a data packet comprising a plurality of cells, wherein the header cell of the data packet is one of the plurality of cells of the data packet, wherein the header cell of the plurality of cells comprises header and packet data information (col. 1 L64 to col. 2 L9, col. 11 L5-19, col. 17 L6-64, fig. 20, col. 25 L58 to col. 26 L43: i.e. Parruck discloses preventing misalignment in ATM networks, wherein ATM network is a cell-based routing

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network and MPLS network), and wherein the header cell includes the header in its entirety for the data packet (fig. 41, col. 1 L64 to col. 2 L10, fig. 60J, 60H) [note that applicant's invention either utilizes packet switching scheme and/or cell-based switching scheme, and Parruck teaches both of these schemes or environment, e.g. col. 1 L26 to col. 2 L9, col. 4 L5-58).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Thompson in view of Scot and further in view of Parruck, in order to prevent misalignment in an ATM networks.

One of ordinary skilled in the art would have been motivated because it would have prevented misalignment of the data packet and/or header cell in an ATM network (Parruck, col. 30 L49 to col. 31 L17).

As per claim 2, Thompson in view of Scott and further in view of Parruck discloses the network device wherein the network device comprises an aggregator that interfaces with an Ethernet and a SPI-4 system (Parruck, col. 31 L20-56, fig. 1, fig. 4, fig. 27). One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 1.

As per claim 3, Thompson in view of Scott and further in view of Parruck discloses the network device configured to interface between twelve 1-gigabit ports and one 12 Gigabit/s SPI-4 interface (Parruck, col. 31 L20-56, fig. 1, fig. 4, fig. 27: please note the port speed and uplink speed may vary, however various modules are available with various speeds or bandwidth). One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 1.

As per claim 4, Thompson in view of Scott and further in view of Parruck discloses the system wherein the network device is a network switch (Parruck, fig. 2, fig. 4, fig. 9, col. 10 L1-



25). One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 1.

As per claim 6, Thompson further discloses forwarding the modified cell of the data packet to an output port (col. 6 L30-46). Therefore, claim 6 is rejected for the same reasons as set forth in claim 1 above.

As per claims 7, 8 and 10-12, they do not teach or further define over the limitations in claims 1-4 and 6. Therefore, claims 7, 8 and 10-12 are rejected for the same reasons as set forth in claims 1-4 and 6.

3. Claims 5, 9 and 13 are rejected under 35 U.S.C. 103(a) as being obvious over Thompson, Michael I. (herein known as Thompson, EP 0 572 145 A2) in view of Scott (U. S. Patent No. 6,512,773 B1), further in view of Parruck et al. (hereinafter Parruck, U. S. Patent No. 7,139,271 B1), and further in view of Yik et al. (U. S. Patent No. 6,697,873 B1).

As per claim 5, Thompson, Scott and Parruck disclose the network device comprising a layer two switching module configured to build a table of forwarding rules (Parruck, Parruck, fig. 2, fig. 4, fig. 9, col. 10 L1-25) and configured to instruct the extraction module to remove the null bytes from the modified cell of the data packet as the modified cell of the data packet exits the network device (Thompson, col. 6 L35-46; Parruck, col. 1 L64 to col. 2 L9, col. 11 L5-19, col. 17 L6-64, col. 25 L58 to col. 26 L43), however, Thompson, Scott and Parruck does not disclose a medium access control protocol module having a MAC address for transmitting the modified cell of the data packet and a layer two switching module configured to build a table of forwarding rules upon which the MAC addresses exist.

Yik explicitly discloses an apparatus comprising a medium access control protocol module having a MAC address for transmitting the modified cell of the data packet and a frame-forwarding device including MAC address tables (i.e. a layer two switching module building a forwarding table based on MAC addresses, see abstract, fig. 2, fig. 6, fig. 7A and col. 2L20-31, col. 4 L33-67).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Yik as stated above with Thompson, Scott and Parruck in order to include a MAC module for transmitting the modified cell of the data packet and a layer two switching module for building a forwarding table.

One of ordinary skilled in the art would have been motivated because it would have increased the performance of the network by forwarding the frames to the correct output port associated with the particular MAC address (Yik, col. 2 L20-31).

As per claim 9 and 13, they do not teach or further define over the limitations in claim 5. Therefore, claims 9 and 13 are rejected for the same reasons as set forth in claim 5.

#### **Additional References**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Mizutani et al., U. S. Patent No. 5,974,466: ATM controller.
- b.** Bakke et al., U. S. Patent No. 5,566,170: Method and Apparatus for accelerated packet forwarding.

**Conclusion**

Examiner's Remarks: The teachings of the prior art should not be restricted and/or limited to the citations by columns and line numbers, as specified in the rejection. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

In the case of amendments, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and support, for ascertaining the metes and bounds of the claimed invention.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is (571)272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kamal Divecha  
Art Unit 2151  
/John Follansbee/

Supervisory Patent Examiner, Art Unit 2151